platform in parallel with the dome and platform controllers, so that the observer may be able to avoid striking the telescope when moving either the platform or the dome.

Among minor conveniences two may be mentioned which have been in use for several years: the right-angled finder (a disused comet seeker), and a counterbalanced mirror cover controlled by a cord over pulleys at the eye end so that the mirror may be quickly and easily covered when putting in or taking out a plate in positions near the zenith. The broken finder, in particular, has proved itself absolutely indispensable in actual work.

With the exception of the original mounting of the Crossley reflector, where the services of an assistant were necessary, all the Lick Observatory instruments have always been on the "one-man" plan, *i. e.* no assistant or helper is ever employed in the ordinary work of the 36-inch refractor or of the reflector, and experience has shown that the observer's personal convenience and freedom from fatigue, and the ability to cut down to a minimum the time and effort in starting work or changing from one object to another are factors fully as important as the possession of powerful equipment. In these respects the recently installed Crossley improvements have very greatly increased the efficiency of the instrument.

HEBER D. CURTIS.

FAINT STANDARDS OF PHOTOGRAPHIC MAGNITUDE FOR THE SELECTED AREAS.

The purpose of this note is to describe briefly a program of photometric observations now in progress with the 60-inch reflector of the Mt. Wilson Solar Observatory. It involves the determination of the photographic magnitudes of the fainter stars immediately surrounding the central star of each of the 115 Selected Areas on and north of the celestial equator. The regions covered are 23′ in diameter, and it is proposed to determine upon an absolute scale the magnitudes of all the stars that may be registered with an exposure of 15 minutes. With satisfactory observing conditions, the limiting magnitude should be about 17.5 on the photographic scale. Altho the main interest of the investigation centers in the faint stars,

it is important for comparison purposes that the brighter objects should also be observed. On this account plates of short exposure are included. An absolute scale is established for each region by means of diaphrams and a wire gauze screen. The program for each area is as follows:—

Exposure Time, Min.	Apertures	No. of Plates
2	60, 32, 14, 9, 9, 14, 32, 60	2
15	60, 32, 32, 60	1
15	60, screen, screen, 60	1

Of the 460 plates required for the determination of the relative magnitudes, 225 have already been obtained; and of this number one half have been measured and reduced.

The results will be reduced to a homogeneous system by inter-comparison and comparison with the pole. The program for this part of the observations has not been definitely determined. A tentative arrangement provides for the inter-comparison of the areas of each zone by photographing adjacent areas on the same plate with exposures of two minutes. In this manner each zone can be reduced to a homogeneous system. To reduce all the zones to the same zero point, comparisons with the pole will be made, probably at intervals of four hours in right ascension. To avoid the direct comparison of widely distant areas, secondary standards will be established in the 30° and 60° zones, which will serve for the determination of the zero points of the zones of small and intermediate declination.

An indication of the amount of material which will thus be accumulated is afforded by the fact that the photographs for ten areas ranging from 20° to 72° of galactic latitude show 864 stars, an average of 86 per area. On this basis, the final results should include magnitudes for nearly 10,000 stars.

The probable precision of a single value of a magnitude, including scale errors, is of the order of 0.09 magnitude. As an average of four values will be available for each star, the mean probable error of a catalog magnitude should be about 0.05 magnitude.

FREDERICK H. SEARES.

MT. WILSON SOLAR OBSERVATORY,
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